

March 26, 2001; in addition this non-provisional application claims priority of a U.S. non-provisional application, Serial No. 10/051594, inventor H. Brock Kolls, entitled A WIRELESS SYSTEM FOR COMMUNICATING CASHLESS VENDING TRANSACTION DATA AND VENDING MACHINE AUDIT DATA TO REMOTE LOCATIONS, filed January 18, 2002; which is a continuation in part application that claims priority of a U.S. non-provisional application, Serial No. 09/888797, inventor H. Brock Kolls, entitled A METHOD OF PROCESSING CASHLESS PAYMENT TRANSACTIONS WORLDWIDE, filed June 25, 2001; which is a continuation in part application that claims priority of a U.S. non-provisional application, Patent Number 6,505,095, Serial No. 09/884755, inventor H. Brock Kolls, entitled SYSTEM FOR PROVIDING REMOTE AUDIT, CASHLESS PAYMENT, AND INTERACTIVE TRANSACTION CAPABILITIES IN A VENDING MACHINE, filed June 19, 2001.

Item #2

Replace the paragraph on page 2 lines 21-26 with the following paragraph:

Recent trends in the vending industry have been to offer higher priced items out of vending equipment at traditionally unattended vending locations. Higher priced item offers can result from the desire to vend larger portions of products such as the twenty-ounce soda bottle verse the twelve-ounce soda can. In other cases the higher priced items can be items that until recently may not have been considered for sale through vending equipment such as phone cards, disposable cameras, and frozen food entrees to name a few.

Item #3

Replace the paragraph on page 7 lines 1-8 with the following paragraph:

The present invention also relates to a system having a plurality of configurable communication options for data communicating to a plurality of remote locations. Such communication options include local area network connection, telephone line, wireless point-to-point where the system data communicates wirelessly to a local transceiver base unit which has access to a telephone line thereby giving the system wireless access to a telephone line, and wireless network data communication access, wherein a data modem connects the system to a WAN for data communication access to a plurality of remote locations.

Item #4

Replace the paragraph on page 7 lines 27-28 with the following paragraph:

The present invention also relates to the system 500 being packaged in a semiconductor creating a single chip system 500 solution.

Item #5

Replace the paragraph starting on page 12 line 22 through page 13 line 4 with the following paragraph:

Vending machine types suitable for interconnection to and operation with the VIU 100 include vending beverage and snack machines, value adding equipment, and dispensing equipment that operate in connection with or make available an MDB bus interface, or DEX interface, or a bill acceptor interface, or a coin mechanism interface. Such vending machines include for example and not limitation those manufactured by or for COKE-A-COLA, PEPSI, MARS, VENDO, ROYAL, DIXIE NARCO, GPL, CRANE NATIONAL, AUTOMATED PRODUCTS, CAVALIER, MARCONI or other similar vending machines. Such value adding equipment and dispensing equipment can include for example and not limitation those manufactured by or for ACT, XCP,

SCHLUMBERGH, DAYNL, DEBITEK, GILBARCO, MARCONI, COPICO, PRE-PAID EXPRESS, or other similar value adding equipment and dispensing equipment.

Item #6

Replace the paragraph on page 14 lines 10-22 with the following paragraph:

VIU 100 also includes auxiliary interface port 104 and 106. Though general purpose in nature in an exemplary embodiment ports 104, and 106 provide electrical connections to printer interface 532, and external modem interface 528 respectively. The ports 104, and 106 can be RS232, RS484, or other desirable type of communication interface port. Furthermore ports 104, and 106 can be configured for use as required by the desired application. In an exemplary embodiment auxiliary interface port 104 can be used for interfacing to a serial style printer and port 106 can be used to interface to external communication equipment such as data modem, CDMA modems, CDPD modem, wireless transceivers, wireless systems, or other types of communication devices. In an exemplary embodiment an AES wireless transceiver or other private radio network can be used to provide data communication to and from the VIU 100 as well as serve as repeater to receive and re-transmit data communication to and from other VIU 100 types of devices in the geographic area.

Item #7

Replace the paragraph on page 16 lines 10-13 with the following paragraph:

The VIU 100 includes a service button 120 and a ground terminal 122. The service button provides one of a plurality of electrical connections to the keypad and button inputs 510. The ground terminal 122 provides, as may be required, electrical connection to the VIU 100 enclosure.

Item #8

Replace the paragraph on page 16 lines 20-28 with the following paragraph:

Referring to Figure 2A and 2B there is shown a transceiver and modem base unit 200. Transceiver and modem base unit 200 includes transceiver unit 700 built in. The transceiver unit 200 with transceiver unit 700 data communicates wirelessly with the VIU 100 and by way of a modem data communicates with a remote location. In an exemplary embodiment the VIU 100 with system 500 and transceiver unit 200 with transceiver unit 700 form a wireless data link, which has access to a modem for data communicating with a remote location. In this regard, the reliance on having a telecommunication line in proximity to the VIU 100 or more generally in proximity to the vending equipment the VIU 100 is installed in is greatly reduced.

Item #9

Replace the paragraph on page 17 lines 8-12 with the following paragraph:

The transceiver unit 200 has incorporated into it a system 700 control system. Figures 2A and 2B shows a telecommunication access port 202 in the side on the transceiver unit 200. The telecommunication access port 202 provides access by way of a plurality of electrical connections to the modem 704. A telecommunication access port 202 can be an RJ11 style, or similar telecommunication connector.

Item #10

Replace the paragraph on page 25 lines 21-28 with the following paragraph:

In an exemplary embodiment a VIU 100 can be located inside the vending equipment, such as vending equipment 402. In addition, the card reader assembly with optional printer assembly can be mounted inside the vending equipment in such a way

that a user has access to the card reader assembly. During operation a communication line can be interconnected directly with the VIU 100. Alternatively the VIU 100 can wireless data communicate with a transceiver base unit 200. There is shown in Figure 4 a transceiver unit 200 plugged into an electrical outlet on wall 202. Also shown is a telecommunication line 408 interconnect with transceiver unit 200.

Item #11

Replace the paragraph starting on page 26 line 27 through page 27 line 12 with the following paragraph:

The audit-credit-interactive system 500 includes numerous mutually exclusive interfaces and control means. In a plurality of customer specifications and where customer cost considerations demand, there may arise a situation where an audit-credit-interactive system 500 may be manufactured in such a way as to not contain or require the use of certain features, functions, interfaces, and or control means. Accordingly, an audit-credit-interactive system 500 can easily be manufactured to include or exclude a specific combination of features, functions, interfaces, and or control means to produce the desired system performance at a desirable cost to a customer. For example and not limitation, a customer may desire to operate an audit-credit-interactive system 500 without an RFID interface 504. In such a case, an audit-credit-interactive system 500 could be manufactured with the omission of the RFID interface 504. In any combination, the same inclusion or exclusion of features, functions, interfaces and or control means can be applied to other audit-credit-interactive system 500 features, functions, interfaces, and or control means.

Item #12

Replace the paragraph on page 27 lines 14-23 with the following paragraph:

Interconnected with microcontroller 502 can be an RFID interface 504. The RFID interface 502 can data communicate with wired or wireless devices that are proximate to the RFID interface 504. In an exemplary embodiment these wired and wireless devices include, for example and not limitation, touch devices from DALLAS SEMICONDUCTOR, and wireless devices such as the MOBIL SPEED PASS, or other similar or suitable wired or wireless RFID devices. Microcontroller 502 can be any suitable microcontroller, or microprocessor. In an exemplary embodiment a microcontroller 502 can be a ZILOG Z8038220FSC, ZILOG eZ80 type, INTEL, MICROCHIP, MOTOROLA, AMD, UBICOM, or other similar brand or type of microcontroller.

Item #13

Replace the paragraph starting on page 27 line 25 through page 28 line 8 with the following paragraph:

Interconnected with microcontroller 502 can be bill acceptor and coin mechanism interface 506. The bill acceptor and coin mechanism interface 506 emulate industry standard bill acceptor and coin mechanism interfaces. In this regard, the audit-credit-interactive system 500 can be interconnected to vending equipment by way of the interface 506. The audit-credit-interactive system 500 mimicking industry standard bill acceptor and coin mechanism electrical control system and signal timing can then operate the vending equipment. Industry standard bill acceptors include serial and pulse style. Serial style bill acceptors utilize INTERRUPT, SEND, ACCEPT ENABLE, and DATA control signal lines. Pulse style bill acceptor and coin mechanism send electrical pulses to an attached control system to indicated the receipt of coin and currency. Serial and pulse style bill acceptors and coin mechanisms can include for example and not limitation MARS, COINCO, CONLUX, or other similar bill acceptors and or coin mechanisms.

Item #14

Replace the paragraph on page 29 lines 20-25 with the following paragraph:

Interconnected with microcontroller 502 can be an external peripheral interface 536. The external peripheral interface 536 includes a plurality of configurable input and output lines for interfacing to external peripheral devices. External peripheral interface 536 can support serial peripheral interfaces (SPI), serial interfaces such as RS232, RS485, I²C, and other types of peripheral interfaces and communication protocols and standards.

Item #15

Replace the paragraph on page 36 lines 7-10 with the following paragraph:

In addition to accepting magnet cards card reader interface 526 can implement a smart card reader interface. In this regard, system 500 by way of card reader interface 526 can read, write, and execute embedded applications on a plurality of types and brands of smart cards.

Item #16

Replace the paragraph on page 38 lines 10-17 with the following paragraph:

In a second mode of operation the G4 can be configured and serve as an MDB controller (system 500) only. In this mode both the MDB-CONTROL and NON-MDB-CONTROL commands can be executed. While in this mode of operation the computing platform operates as a master device controlling the operation and process flow of the system. While in this mode the G4 serves as a slave device interfacing to the vending machine and managing the control of the MDB interface. COMMUNICATION

INTERFACE details the electrical interconnections required to allow the G4 to data communicate with a computing platform.

Item #17

Replace the paragraph on page 39 lines 1-3 with the following paragraph:

Serial communications between the computing platform and the MDB controller/G4 are set at 9600 baud, 8 data bits, no parity, and 2 Stop bits. Required serial port communications lines include transmit (Txd), Receive (Rxd) and Ground (Gnd).

Item #18

Replace the paragraph starting on page 54 line 24 through page 55 line 2 with the following paragraph:

When the MDB capture mode is switched to 'ON' the G4 will stay in this state until either 1) the buffer area for MDB codes is filled (about 15 seconds) or 2) the MDB capture mode is switched to 'OFF'. Even if the G4 is powered 'OFF' or the @<esc> K HARDWARE RESET command is issued the MDB capture mode state will not change. The reason for this is to allow the MDB capture mode to be turned 'ON' and remain 'ON' capturing MDB transaction codes between the vending machine and the G4 while the vending machine and or G4 go through a power up or reset procedure.

Item #19

Replace the paragraph on page 60 lines 4-7 with the following paragraph:

@<esc>W – SEND ALL TRANSACTION RECORDS. The MDB controller/G4 will return all the transaction records beginning with 0000. The G4 will return the message

'DONE' when complete. The transaction records are a fixed length records and follow the format shown above in the @<esc>Q command. The result sting will return:

Item #20

Replace the paragraph on page 60 lines 19-21 with the following paragraph:

If the G4 is in a vending transaction a SEND ALL TRANSACTION RECORDS transaction cannot be executed. If a SEND ALL TRANSACTION RECORDS transaction cannot be executed the result string will return:

Item #21

Replace the paragraph starting on page 79 line 11 through page 80 line 2 with the following paragraph:

The communication pins Rxd, Txd, CTS, and RTS conform to RS232 standards. A minimum of Rxd, Txd, and GND are required to implement serial communication between the G4 and a computing platform. The RTS and CTS lines only come into play from a flow control perspective when receipt data is being sent from the G4. CTS and RTS are implemented in such a way as to allow a receipt printer that has little to no printer buffer to control the flow of data. CTS and RTS have no other purpose in non-print data communications and can be ignored or left unimplemented.

Item #22

Replace the paragraph starting on page 86 line 20 through page 87 line 2 with the following paragraph:

For example and not limitation print data can be packaged with the format and control codes outlined in the interactive interface protocol and specification shown in the

table above. Upon the data arriving at microcontroller 602, microcontroller 602 can decode that the data is print data, remove any protocol formatting characters to obtain pure print data, and then pass or forward the data to the printer interface 608. Similar processes can occur for the other peripheral devices including I/O interface 604, display 606, and card reader interface 610, and keypad and button inputs 612. Data can also be obtained from each of the peripheral devices and combined into a single data string. The data string can be sent to the system 500 where processing can occur based in part of the data string received.

Item #23

Replace the paragraph on page 87 lines 13-21 with the following paragraph:

One aspect of equipping vending equipment with a VIU 100 and or a card reader assembly and optional printer assembly is that the VIU 100 device requires a data communication connection with a plurality of remote locations. In many vending equipment locations it can be difficult to connect the VIU 100 to a physical communication line. When connecting the VIU 100 to a physical communication is difficult or undesirable the use of the transceiver and modem base unit 700 (also referred to as base unit 700) can be a more preferred data communication option. A transceiver and modem base unit 700 can be referred to as a transceiver unit 700. Transceiver unit 700 is incorporated into transceiver and modem base unit 200.

Item #24

Replace the paragraph starting on page 87 line 23 through page 88 line 2 with the following paragraph:

In an exemplary embodiment the transceiver unit 700 forms a wireless data link with a VIU 100 having a system 500 incorporated within. In this regard, the requirement

of physically connecting the VIU 100 to a communication line can be eliminated. To create a wireless data line the VIU 100 equipped with an audit-credit-interactive system 500 utilizes transceiver 524 to data communicate with transceiver unit 700's transceiver 708. Transceiver 708 is interconnected with microcontroller 702. An antenna 716 is interconnected with transceiver 708. Antenna 716 can be of similar form and function to antenna 538. Transceiver 708 can be similar in form and function to transceiver 524.

Item #25

Replace the paragraph on page 88 lines 20-27 with the following paragraph:

A plurality of remote locations can include credit bureaus such as processing bureau 804, host network centers such a host network center 808, other remote locations such as remote location 806, and global network based data processing resource 810. Processing bureau 804, host network center 808, and remote location 806 can be referred to as a plurality of remote locations or remote locations. Processing bureau 804 can be a credit card processing bureau. Remote location 810 can be an Internet based data processing device or resource, or a device or resource accessible by way of the Internet – thus referred to as a global network based data processing resource.

Item #26

Replace the paragraph on page 89 lines 5-12 with the following paragraph:

Referring to Figure 8 there is shown an audit-credit-interactive system 500 interfaced to a computing platform. Figure 8 illustrates how an audit-credit-interactive system 500 can be connected to a computing platform 802 by way of system 500's interactive interface 532 and computing platform 802 interactive interface. In similar form and function as the interactive interface solution between system 500 and system 600 described above, system 500 and computing platform 802 can interconnect and data

communicate as described with the communication specification and protocol shown in the table above.

Item #27

Replace the paragraph on page 91 lines 19-26 with the following paragraph:

Figure 9B illustrates how an audit-credit-interactive system 500 can be configured in series with the vending machine MDB interface 902. In this regard, the peripheral devices can be supported by the system 500's mimic MDB interface 516. The advantage off this network configuration is that the system 500 can support multiple versions and derivative versions of the NAMA MDB protocol specification. Furthermore, the system 500 can provide peripheral message emulation and message passing to effectuate the VMC's ability to data communicate to each peripheral by way of the system 500's MDB interface 518 and mimic MDB interface 516.

Item #28

Replace the paragraph on page 99 lines 15-28 with the following paragraph:

The MDB protocol involves a master-slave relationship between the master vending equipment's VMC and the slave peripheral devices. In implementing the MDB protocol the master VMC initiates an MDB message command to a slave peripheral device. The slave peripheral device then has a finite amount of time to respond to the VMC command message with a message response. As such the amount of time allotted for the peripheral device to respond with a MDB message response can vary from VMC to VMC. If for example and not limitation the peripheral device responds too quickly with a message response the VMC's microprocessor may not be ready and miss the return message. As a result the system 500 could fail to initialize and operate correctly. If for example and not limitation the peripheral device takes too much time to respond to

the message the VMC may time-out waiting for the peripherals response message. As a result the system 500 could fail to initialize and operate correctly.

Item #29

Replace the paragraph on page 106 lines 1-2 with the following paragraph:

In block 1232 the transceiver system 700 sends the ACK message to the system 500 originating the data command. Processing then moves to block 1238.

Item #30

Replace the paragraph on page 106 lines 9-10 with the following paragraph:

In block 1240 the transceiver system 700 sends the ACK message to the system 500 originating the data command. Processing then move back to block 1208.

Item #31

Replace the paragraph starting on page 111 line 22 through page 112 line 3 with the following paragraph:

Referring to Figure 13 there is shown a local transaction authorization routine 1300. A conventional card authorization through a remote processing bureau utilizing dial-up landline access to the remote processing bureau can take ten or more seconds to complete. In certain vending venues and or while vending certain type of products a ten or more second delay may be unacceptable. In these instances authorization routine 1300 can be implemented to reduce or eliminate the authorization delay while maintaining a high confidence that the card is valid. A card can be any form of ID including a credit card, magnetic card, wireless phone, a personal digital assistant PDA, private label card,

smart card, hotel room card, radio frequency RFID identification, biometric, and or other similar or suitable form of ID. Processing begins in decision block 1302.

Item #32

Replace the paragraph on page 112 line 5-16 with the following paragraph:

In decision block 1302 a determination is made as to whether the LOCAL AUTHORIZATION FLAG is set for this pass. In an exemplary embodiment system 500 can be programmed to locally authorize a card based in part on an iterative process, which allows for the local authorization routine to be invoked, at a minimum, on the first pass and subsequently at any successive pass, up to the last pass. The current pass through the routine is referred to as the CURRENT AUTHORIZATION ATTEMPT. The last pass is predetermined and is referred to as the MAXIMUM AUTHORIZATION ATTEMPTS LIMIT. The LOCAL AUTHORIZATION FLAG determines on which iterative pass the local authorization routine will be invoked. The iterative pass in which the LOCAL AUTHORIZATION FLAG will be set and the local authorization routine invoked is referred to as the LOCAL AUTHORIZATION ROUTINE ENTRY COUNTER.

Item #33

Replace the paragraph on page 127 lines 9-13 with the following paragraph:

In decision block 1624 a determination is made as to whether the user has pressed the end transaction button. If the resultant is in the affirmative that is the user has pressed the end transaction button then processing moves to block 1626. If the resultant is in the negative that is the user has not pressed the end transaction button then processing moves to decision block 1628.

Item #34

Replace the paragraph starting on page 127 through page 128 line 2 with the following paragraph:

In decision block 1632 a determination is made as to whether the MAXIMUM VEND ITEM LIMIT has been reached. If the resultant is in the affirmative that is the MAXIMUM VEND ITEM LIMIT has been reached then processing moves back to block 1626. If the resultant is in the negative that is the MAXIMUM VEND ITEM LIMIT has not been reached then processing then moves to decision block 1634.

Item #35

Replace the paragraph on page 128 lines 16-17 with the following paragraph:

In block 1636 the RE-VEND TIMER is reset to zero. Processing then moves to block 1640.

Item #36

Replace the paragraph on page 128 lines 23-28 with the following paragraph:

In decision block 1642 a determination is made as to whether the RE-VEND TIMER has reached the RE-VEND TIMER LIMIT. If the resultant is in the affirmative that is the RE-VEND TIMER has reached the RE-VEND TIMER LIMIT then processing moves back to block 1626. If the resultant is in the negative that is the RE-VEND TIMER has not reached the RE-VEND TIMER LIMIT then processing moves to decision block 1646.

Item #37

Replace the paragraph on page 129 lines 1-6 with the following paragraph:

In decision block 1646 a determination is made as to whether the user has pressed the end transaction button. If the resultant is in the affirmative that is the user has pressed the end transaction button then processing moves back to block 1626. If the resultant is in the negative that is the user has not pressed the end transaction button then processing moves to block 1644.

Item #38

Replace the paragraph on page 129 lines 15-17 with the following paragraph:

In block 1648 the VEND REQUEST command is processed and a VEND APPROVED or VEND DENIED response message is data communicated from the system 500 to the requesting VMC. Processing then moves to back to decision block 1632.

Item #39

Replace the paragraph on page 129 lines 19-25 with the following paragraph:

Referring to Figure 17 there is shown a data communication sweeping, processing, and data forwarding routine 1700. In an exemplary embodiment the host network center 808 accumulates a plurality of different kinds of parsed data transactions in a temporary data structure. Such a parsing and temporary data structure can be implemented as disclosed in routine 1500. To move the data transactions from the temporary data structure a more permanent data structure and or host network sever routine 1700 can be implemented. Processing begins in block 1702.

Item #40

Replace the paragraph starting on page 129 line 27 through page 130 line 2 with the following paragraph:

In block 1702 the transactions stored in the temporary data structure are swept into an operational database. Such an operational database can be implemented as a SQL database, ORACLE database, flat file database, DB2 database, and or a combination of different kinds and types of databases. Processing then moves to block 1704.

Item #41

Replace the paragraph on page 130 lines 9-13 with the following paragraph:

In block 1706 any transactions including the previously posted authorized transactions are settled with the processing bureau 804. The process of settlement effectuates the transfer of funds from the cardholder to the merchant. Settlement after the vending sale has occurred can be referred to as post settlement or post settle. Processing then moves to block 1708.

Item #42

Replace the paragraph on page 130 lines 15-20 with the following paragraph:

In block 1708 any refund transactions generated by the host network center customer service are processed. Refund transactions can occur when a previously settled transaction requires some portion of the sale amount be refunded to the cardholder. Customer service can generate a refund transaction by querying from an operation database the original transaction and then initiate a refund transaction based in part on the queried customer's original transaction. Processing then moves to block 1710.

Item #43

Replace the paragraph on page 131 lines 1-8 with the following paragraph:

In addition to the convert and forward functionality the data handled can be measured and counted as desired for the purpose of billing for the service of gathering data from a remote system 500 and delivering the data to a customer's desired location. Measurement and counting can include for example and not limitation measuring file and or data size, measuring the frequency the data is gathered, counting the number of times data is gathered and or forwarded, measuring access to the host network center 808, or by other suitable measurement and counting methods and or criteria. Processing moves to block 1712.

Item #44

Replace the paragraph on page 131 lines 10-15 with the following paragraph:

In block 1712 the funds collected from the processing of transactions can be remitted to the customer as required by EFT or other desirable method. The funds remitted can have service fees deducted from them such that their EFT amount is less than the total processed transaction amount. In this regard customer will not have to be billed for services. The deducting of service fees from the flow of funds can eliminate the need to invoice a customer for service. The routine is then exited.

Item #45

Replace the paragraph on page 132 lines 18-23 with the following paragraph:

In block 1810 the system 500 by way of the mimic MDB interface 516 receives any response MDB message from the coin mechanism. As required the system 500 decodes and determines if the response message from the coin mechanism requires encoding and forwarding or passing of the message to the VMC. As determined by the

system 500 the message is selectively forwarded to the VMC upon processing returning to block 1802.

Item #46

Replace the paragraph starting on page 132 line 25 through page 133 line 2 with the following paragraph:

In decision block 1812 a determination is made as to whether the MDB command message is a bill acceptor command message. If the resultant is in the affirmative that is the MDB command message is a bill acceptor MDB command message then processing moves to block 1814. If the resultant is in the negative that is the MDB command message is not a bill acceptor MDB command message then processing moves to decision block 1818.

Item #47

Replace the paragraph on page 133 lines 4-6 with the following paragraph:

In block 1814 the MDB command message is encoded and forwarded or passed by way of the mimic MDB interface 516 to the bill acceptor. Processing then moves to block 1816.

Item #48

Replace the paragraph on page 133 lines 8-12 with the following paragraph:

In block 1816 the system 500 by way of the mimic MDB interface 516 receives any response MDB message from the bill acceptor. As required the system 500 decodes and determines if the response message from the bill acceptor requires encoding and

forwarding or passing of the message to the VMC. As determined by the system 500 the message is selectively forwarded to the VMC upon processing returning to block 1802.

Item #49

Replace the paragraph on page 133 lines 14-19 with the following paragraph:

In decision block 1818 a determination is made as to whether the MDB command message is a card reader or online module (OLM) command message. If the resultant is in the affirmative that is the MDB command message is a card reader or OLM MDB command message then processing moves to block 1820. If the resultant is in the negative that is the MDB command message is not a card reader or OLM MDB command message then processing moves to block 1822.

Item #50

Replace the paragraph on page 134 lines 15-16 with the following paragraph:

In block 1826 the terminal system 500 can manage the data received from the peripheral device as required. Processing moves back to block 1802.